

Curriculum Vitae

Name:	Mary Jane Osborn
Title:	Professor and Head
Department:	Microbiology
Date of Birth:	September 24, 1927
Birthplace:	Colorado Springs, Colorado
Education:	B.A. (Physiology), University of California, Berkeley, California, 1948 Ph.D.(Biochemistry), University of Washington, Seattle, Washington, 1958
Experience:	1959-63 Research Associate, New York University College of Medicine; Instructor, 1961; Assistant Professor, 1962 1963-68 Assistant Professor, Albert Einstein College of Medicine, New York; Associate Professor, 1965 1968- Professor, Department of Microbiology, The University of Connecticut Health Center School of Medicine, Farmington, CT; Head, 1980-
Professional Societies	American Society of Biochemistry and Molecular biology; American Society of Microbiology; American Association for the Advancement of Science.
Honors or Distinctions:	Microbial Chemistry Study Section, NIH, 1968-72; Member-at-large, Research Committee of the American Heart Ass'n., 1972-77 Chairman, 1976-77; Board of Scientific Councilors, National Heart and Lung Institute, 1975-79; Member, Advisory Council NIGMS 1983-86; Member, National Science Board, 1980-86; President's Committee on the National Medal of Sciences, 1981-82; Advisory Council, Division of Research Grants, NIH, 1989-94 (chair, 1992-94) Research Career Development Award, 1961-68; Fellow, American Academy of Arts and Sciences (Council, 1988-92); National Academy of Sciences, 1978 (Council, 1990-93); Chancellor's Distinguished Lecturership, University of California, Berkeley, 1982. Harvey Lecture, 1983; American Academy of Microbiology, 1992 (Board of Governors, 1995-01) Editorial Advisory Board, Biochemistry, 1969-75; Editorial Board, Journal of Biological Chemistry, 75, associate editor, 1978-80; Editorial Committee, Annual Review of Biochemistry, 1972-77 Council, American Society of Biological Chemists 1974-75, President, 1981-82; Chairman Division Biological Chemistry, American Chemical Society, 1975-76; President, Federation of American Societies for Experimental Biology, 1982-83 Advisory Council, Max Planck Institute of Immunobiology, 1974-78; Board of Scientific Advisors Roche Institute for Molecular Biology 1981-85, chairman, 1983- 85; Visiting Committee Graduate Program in Biomedical Sciences, Harvard University, 1981-86, Chair, 84-86; Board of Scientific Advisors, Searle Scholars Program, 1985-89; Advisory Committee, Woods Hole Marine Biology Laboratories 1989-92; Advisory Committee, Princeton University Department of Molecular Biology, 1991-

Governing Board, National Research Council 1990-93; Chair, NRC Committee on Indicators for Waterborne Pathogens, 2002-03; NRC Space Studies Board , 1994-2000, Chair, Committee on Space Biology and Medicine 1994-2000; NRC Panel on Biomedical and Biobehavioral Research Personnel Needs, 1992-94; National Academy of Sciences Committee on Science, Engineering and Public Policy, 1993-6; NAS Committee on Human Rights, 1993-94; NAS Report Review Committee, 2000-; Board of Directors, Biosis, 1986-91 (Chair, 1991) ; Scientific Advisory Committee, Donaghue Foundation, 1992-1999; German American Academic Council, 1994-97.

Research Interests: Biogenesis of bacterial membranes

Teaching

Associate Advisor:

Stacy Carrington, Ph.D.	thesis research
Sheryl Justice, Ph.D.	thesis research
Sibani Sengupta, Ph.D.	thesis defense 8/00
Elizabeth Melly, Ph.D.	thesis research

Lectures

<u>Program</u>	<u>Course Name</u>	<u>Course No.</u>	<u>No. of Students</u>	<u>Lecture Hrs.</u>
Core Cell Biology		BMS 380	23	12
Core Biochemistry 1		BMS 351	23	7
Grad. Prog.	Responsible Conduct in Research		40	2
BMS Infectious Diseases			~120	7

Small Group Teaching

<u>Program</u>	<u>Group Description</u>	<u>No. of Students</u>	<u>Lecture Hrs.</u>
BMS	CMB conference	~30	2
BMS	ID conference	~30	2

Institutional Service

OCOR Strategic Research Initiative Planning Committee

Publications: 84

1. Felts, J.M., I.L. Chaikoff and M.J. Osborn 1951. "Insulin and the fate of lactate in the diabetic liver." *J. Biol. Chem.*, 191:683.
2. Osborn, M.J., I.L. Chaikoff and J.M. Felts. 1951. "Insulin and the fate of pyruvate in the diabetic liver." *J. Biol. Chem.*, 193:549.
3. Felts, J.M., I.L. Chaikoff and M.J. Osborn. 1951. "Insulin and the fate of acetate and formate in the diabetic liver." *J. Biol. Chem.*, 193:557.
4. Osborn, M.J., J.M. Felts and I.L. Chaikoff. 1953. "Transitory increase in fat content and size of liver induced by insulin in alloxan-diabetic rats." *J. Biol. Chem.*, 203:173.
5. Hatefi, Y., M.J. Osborn, L.D. Kay and F.H. Huennekens. 1957. "Hydroxymethyl tetrahydrofolic dehydrogenase." *J. Biol. Chem.*, 227:637.
6. Osborn, M.J. and F.M. Huennekens. 1957. "Participation of anhydroleucovorin in the hydroxymethyl tetrahydrofolic dehydrogenase system." *Biochim. Biophys. Acta*, 26:646.
7. Osborn, M.J., Y. Hatefi, L.D. Kay, and F.M. Huennekens. 1957. "Evidence for the enzymatic deacylation of N¹⁰-formyl tetrahydrofolic acid." *Biochim. Biophys. Acta*, 26:208.
8. Osborn, M.J., E.N. Vercamer, P.T. Talbert and F.M. Huennekens. 1957. "The enzymatic synthesis of hydroxymethyl tetrahydrofolic acid. (active hydroxymethyl)." *J. Amer. Chem. Soc.*, 79:6565.
9. Osborn, M.J. and F.M. Huennekens. 1958. "Enzymatic reduction of dihydrofolic acid." *J. Biol. Chem.*, 233:969.
10. Osborn, M.J., M. Freeman and F.M. Huennekens. 1958. "Inhibition of dihydrofolic reductase by aminopterin and amethopterin." *Proc. Soc. Exp. Biol. Med.*, 97:429.
11. Whiteley, H.R., M.J. Osborn and F.M. Huennekens. 1958. "The mechanism of formate activation." *J. Amer. Chem. Soc.*, 80:757.
12. Huennekens, F.M., M.J. Osborn and H.R. Whiteley. 1958. "The nature of active formate' and 'active formaldehyde'." *Sci.* 128:120.
13. Kay, L.D., M.J. Osborn, Y. Hatefi and F.M. Huennekens. 1959. "The enzymatic isomerization of N⁵-formyl tetrahydrofolic acid to N¹⁰-formyl tetrahydrofolic acid." *J. Biol. Chem.*, 235:195.
14. Huennekens, F.M. and M.J. Osborn. 1959. "Folic acid coenzymes and one-carbon metabolism." *Adv. Enzymol.*, 21:369-446.
15. Huennekens, F.M., H.R. Whiteley and M.J. Osborn. 1959. "Mechanisms of formylation and hydroxymethylation reactions." *J. Cell. Comp. Physiol.*, 54 (Suppl. 1):109.
16. Whiteley, H.R., M.J. Osborn and F.M. Heunnekens. 1959. "Purification and properties of the formate activating enzyme from Micrococcus aerogenes." *J. Biol. Chem.*, 234:1538.
17. Hatefi, Y., P.T. Talbert, M.J. Osborn and F.M. Huennekens. 1959. "Tetrahydrofolic acid." *Biochem. Prep.*, 7:89.
18. Osborn, M.J., P.T. Talbert and F.M. Huennekens. 1960. "The structure of active formaldehyde' (N⁵-N¹⁰-methylene tetrahydrofolic acid)." *J. Amer. Chem. Soc.*, 82:4921.

19. Horecker, B.L., M.J. Osborn, W.L. McLellan, Jr., G. Avigad and C. Asensio. 1961. "The role of bacterial permeases in metabolism." Symp. Membrane Transport & Metabolism. Czech. Acad. Sci., pp. 378.
20. Osborn, M.J., W.L. McLellan, Jr. and B.L. Horecker. 1961. "The transport of galactose in Escherichia coli III. The effect of 2,4-dinitrophenol on entry and accumulation." J. Biol., 236:2585.
21. Osborn, M.J., S.M. Rosen, L. Rothfield and B.L. Horecker. 1962. "Biosynthesis of bacterial lipopolysaccharide. I. Enzymatic incorporation of galactose in a mutant strain of Salmonella." Proc. Natl. Acad. Sci., 48:1831.
22. Fraenkel, D., M.J. Osborn, B.L. Horecker and S.M. Smith. 1963. "Metabolism and cell wall structure of a mutant of Salmonella typhimurium deficient in phosphoglucose isomerase" Biochem. Biophys. Res. Commun., 11:423.
23. Osborn, M.J. 1963. "Studies on the gram-negative cell wall. I. Evidence for the role of 2-keto-3-deoxyoctonate in the lipopolysaccharide of Salmonella typhimurium." Proc. Natl. Acad. Sci., 50:499.
24. Osborn, M.J. and L. D'Ari. 1964. "Enzymatic incorporation of n-acetyl-glucosamine into cell wall lipopolysaccharide in a mutant strain of Salmonella typhimurium." Biochem. Biophys. Res. Commun., 16:568.
25. Osborn, M.J., S.M. Rosen, L. Rothfield and B.L. Horecker. 1964. "The structure and biosynthesis of the lipopolysaccharide component of the gram-negative cell wall." Sci., 145:783.
26. Rothfield, L., M.J. Osborn and B.L. Horecker. 1964. "Biosynthesis of bacterial lipopolysaccharide. II. Incorporation of glucose and galactose catalyzed by particulate and soluble enzymes in Salmonella." J. Biol. Chem., 239:2788.
27. Rosen, S.M., M.J. Osborn and B.L. Horecker. 1964. "Biosynthesis of bacterial lipopolysaccharide. III. Characterization of the galactose incorporation product." J. Biol. Chem., 239:3196.
28. Grollman, A.P. and M.J. Osborn. 1964. "O-phosphorylethanolamine: A component of lipopolysaccharide in certain gram-negative bacteria." Biochem., 3:1571.
29. Sussman, M. and M.J. Osborn. 1964. "UDP-galactose polysaccharide transferase in the cellular slime mold, Dictyostelium discoideum: Appearance and disappearance of activity during cell differentiation." Proc. Natl. Acad. Sci. 52:81.
30. Osborn, M.J., S.M. Rosen, L. Rothfield, L.D. Zeleznick and B.L. Horecker. 1964. "Lipopolysaccharide of the gram-negative cell wal." Sci., 145:783.
31. Zeleznick, L.D., S.M. Rosen, M. Saltmarsh-Andrews, M.J. Osborn, and B.L. Horecker. 1965. "Biosynthesis of bacterial lipopolysaccharide IV. Enzymatic incorporation of mannose, rhamnose and galactose in a mutant of Salmonella typhimurium" Proc. Natl. Acad. Sci., 53:207.
32. Weiner, I.M., T. Higuchi, L. Rothfield, M. Saltmarsh-Andrew, M.J. Osborn and B.L. Horecker. 1965. "Biosynthesis of bacterial lipopolysaccharide V. Lipid-linked intermediates in the biosynthesis of the O-antigen groups of Salmonella typhimurium." Proc. Natl. Acad. Sci., 54:228.
33. Rosen, S.M., L.D. Zeleznick, D. Fraenkel, I.M. Weiner, M.J. Osborn and B.L. Horecker. 1965. "Characterization of the cell wall lipopolysaccharide of a mutant of Salmonella typhimurium lacking phosphomannose isomerase." Biochem. Z., 342:375.

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35. Osborn, M.J. 1966. "Biosynthesis and structure of the core portion of the lipopolysaccharide in Salmonella typhimurium." Ann. N.Y. Acad. Sci., 113:375.
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40. Osborn, M.J. and R. Yuan Tze-Yuen. 1968. "Biosynthesis of bacterial lipopolysaccharide VII. Enzymatic formation of the first intermediate in biosynthesis of the O-antigen of Salmonella typhimurium." J. Biol. Chem., 243:5145.
41. Kent, J.L. and M.J. Osborn. 1968. "Properties of the O-specific haptens formed *in vivo* by mutant strains of Salmonella typhimurium." Biochem., 7:4396.
42. Kent, J.L. and M.J. Osborn. 1968. "Further studies on enzymatic synthesis of O-antigen in Salmonella typhimurium." Biochem., 7:4409.
43. Kent, J.L. and M.J. Osborn. 1968. "Haptenic O-antigen as a polymeric intermediate of *in vivo* synthesis of lipopolysaccharide by Salmonella typhimurium." Biochem. 7:4419.
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47. Eidels, L. and M.J. Osborn. 1971. "Aldoheptose and lipopolysaccharide biosynthesis in transketolase mutants of Salmonella typhimurium." Proc. Natl. Acad. Sci., 68:1673-1677.
48. Osborn, M.J. 1971. "Role of Membranes in macromolecular synthesis." In The Structure and Function of Biological Membranes (ed. L. Rothfield, Academic Press).
49. Bell, R.M., R.D. Mavis, M.J. Osborn, and P.R. Vagelos. 1971. "Enzymes of phospholipid metabolism: Localization on the cytoplasmic and outer membrane of the cell envelope of Escherichia coli and Salmonella typhimurium." Biochim. Biophys. Acta, 249:628.
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54. Osborn, M.J., M.A. Cynkin, J.M. Gilvert, L. Muller and M. Singh. 1972. "Lipid-bound intermediates in the synthesis of bacterial O-antigens." In Methods in Enzymology, Vol. XXVIII (ed. V. Ginsburg). pp. 583-601.
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57. Eidels, L. and Osborn, M.J. 1974. "Phosphoheptose isomerase, first enzyme in the biosynthesis of aldoheptose in Salmonella typhimurium." J. Biol. Chem., 249:5642.
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66. Osborn, M.J., Jones, N.C. and Schindler, M. 1978. "Incorporation of lipid vesicles by Salmonella". Ann. N.Y. Acad. Sci. 308:215.

67. Osborn, M.J. 1978. "Translocation of bacterial cell envelope components" in Transport of Macromolecules (S. Silverstein, ed) Abakon Publishers (West Berlin, Germany) pp. 331-340.
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69. Osborn, M.J. 1980. "Biosynthesis and assembly of the lipopolysaccharide of the outer membrane" in Outer Membranes of Gram-negative Bacteria (M. Inouye, ed.) J. Wiley (New York) pp. 15-34.
70. Schindler, M., Osborn, M.J. and Koppel, D.E. 1980. "Lateral diffusion in reconstituted membranes - comparisons with diffusion in polymers". Nature 283:346-350.
71. Osborn, M.J., Rick, P.D. and Rasmussen, N.S. 1980."Mechanism of Assembly of the outer membrane of Salmonella typhimurium. Translocation and integration of an incomplete mutant lipid A into the outer membrane". J. Biol. Chem. 255:4245-4251.
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82. Mary J. Osborn. 1997. A note on reshaping the graduate education of scientists and engineers. In Beyond the First Degree, ed. R.G. Burgess (SRHE and Open University Press), pp. 186-193.
83. Mary J. Osborn, Outer Membrane, Gram-Negative Bacteria, Encyclopedia of Microbiology, M. Schaechter ed., in press.
84. Garcia-Lara, Osborn & Padula. Identification of a putative origin of replication in *Borrelia burgdorferii*. J. Bacteriol. Submitted

